AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (currently amended) A magnetic field generating device, comprising:

an arrangement comprising a plurality of permanent magnets (PM), each permanent magnet having a north end and a south end, and each aligned in the same north-south orientation, the PM arrangement configured to have a surface at the north polarity end, a surface at the south polarity end, or a surface at both ends; ~~and~~

a layer comprising a ferromagnetic material securely disposed at one of the surfaces of the PM arrangement; and

at least one permanent magnet shim disposed at an opposite side of the layer to the PM arrangement;

wherein the layer has a thickness equal to or less than about 15 millimeters.

2. (original) The device of Claim 1, wherein the layer has a thickness equal to or less than about 5 millimeters.

3. (original) The device of Claim 2, wherein the layer has a thickness equal to or less than about 2 millimeters.

4. (original) The device of Claim 3, wherein the layer has a thickness equal to or less than about 1 millimeter.

5. (original) The device of Claim 4, wherein the layer has a thickness equal to or greater than about 0.1 millimeters.

6. (original) The device of Claim 5, wherein the layer has a thickness equal to or greater than about 0.2 millimeters.

7. (original) The device of Claim 1, wherein the layer comprises a unilayer absent a plurality of laminations.

8. (canceled)

9. (original) The device of Claim 8, wherein the at least one shim has a polarity the same as that of the PM arrangement.

10. (original) The device of Claim 8, wherein the at least one shim has a polarity different from that of the PM arrangement.

11. (original) The device of Claim 8, wherein the at least one shim comprises a first shim having a polarity the same as that of the PM arrangement, and a second shim having a polarity different from that of the PM arrangement.

12. (original) The device of Claim 1, wherein the layer is adhered to the PM arrangement with adhesive.

13. (original) The device of Claim 8, wherein:
the at least one permanent magnet shim is adhered to the layer.

14. (original) The device of Claim 1, wherein:
the layer is segmented.

15. (original) The device of Claim 1, further comprising:
a B_0 field that varies less than or equal to 1 Gauss from a target value.

16. (withdrawn) A method for shimming a magnetic field generating device, comprising:

positioning a plurality of permanent magnets (PM) to form an arrangement, each permanent magnet having a north end and a south end, and each aligned in the same north-south orientation, the plurality positioned to have a surface at the north polarity end of the PM arrangement, a surface at the south polarity end of the PM arrangement, or a surface at both ends of the PM arrangement; and

positioning a layer comprising a ferromagnetic material to be securely disposed at one of the surfaces of the PM arrangement;

wherein the layer has a thickness equal to or less than about 15 millimeters.

17. (withdrawn) The method of Claim 16, further comprising:

securely fixing the layer to the PM arrangement.

18. (withdrawn) The method of Claim 17, wherein the securely fixing comprises securely fixing the layer to the PM arrangement using adhesive.

19. (withdrawn) The method of Claim 16, further comprising:

positioning at least one permanent magnet shim to a side of the layer opposite that of the PM arrangement.

20. (withdrawn) The method of Claim 16, wherein the layer comprises a unilayer absent a plurality of laminations.

21. (currently amended) A magnetic field generating device, comprising:

a permanent magnet having a north polarity end and a south polarity end, and a surface at the north polarity end, at the south polarity end, or at both ends; ~~and~~

a layer comprising a ferromagnetic material securely disposed at one of the

surfaces of the permanent magnet; and

at least one permanent magnet shim disposed at an opposite side of the layer to the permanent magnet, the at least one shim comprising a first shim having a polarity the same as that of the permanent magnet, and a second shim having a polarity different from that of the permanent magnet;

wherein the layer has a thickness equal to or less than about 15 millimeters.

22. (canceled)

23. (original) The device of Claim 22, wherein:
the layer comprises a unilayer absent a plurality of laminations; and
the unilayer is adhered to the permanent magnet.

24. (withdrawn) A method for shimming a magnetic field generating device, comprising:

positioning a plurality of permanent magnets (PM) to form an arrangement, each permanent magnet having a north end and a south end, and each aligned in the same north-south orientation, the plurality positioned to have a surface at the north polarity end of the PM arrangement, a surface at the south polarity end of the PM arrangement, or a surface at both ends of the PM arrangement;

forming a shim assembly having a layer comprising a ferromagnetic material securely disposed at a pole face of a PM shim; and

securely positioning the shim assembly at a surface of the PM arrangement, the layer of the shim assembly being positioned proximate the surface of the PM arrangement;

wherein the layer has a thickness equal to or less than about 15 millimeters.

25. (withdrawn) The method of Claim 24, further comprising:
securely fixing the layer to the PM shim.

26. (withdrawn) The method of Claim 25, further comprising:

securely fixing the shim assembly to the PM arrangement.

27. (withdrawn) The method of Claim 26, wherein the layer comprises a unilayer absent a plurality of laminations.

28. (original) A magnetic field generating device, comprising:

a permanent magnet having a north polarity end and a south polarity end, and a surface at the north polarity end, at the south polarity end, or at both ends;

a non-ferromagnetic shim plate having a plurality of pockets, the shim plate disposed at the surface of the permanent magnet;

a transition layer comprising a ferromagnetic material securely disposed at one or more of the pockets of the shim plate; and

a permanent magnet shim disposed at an opposite side of the layer to the permanent magnet;

wherein the layer has a thickness equal to or less than about 15 millimeters.

29. (original) The device of Claim 28, wherein:

the permanent magnet shim comprises a first shim having a polarity the same as that of the permanent magnet, and a second shim having a polarity different from that of the permanent magnet, the first and second shims being disposed at separate pockets.

30. (original) The device of Claim 28, wherein:

the layer comprises a unilayer absent a plurality of laminations.

31. (original) The device of Claim 30, wherein:

the layer is molded integral to the shim plate.

32. (new) The device of Claim 1, wherein:

the layer is made of ferromagnetic material having a thickness sized to permit local reversal of the magnetization between the PM arrangement and the at least one PM shim while avoiding a shift of the magnetic field at the layer.